

## **2.0 Methodology**

### **2.1 Impact Assessment Matrices**

The framework for assessing potential impacts is comprised of 10 impact assessment matrices which capture the range of interactions between the various types of forest management activities carried out by Tembec and the environmental, social and economic components across FML 01. The technique used to assess these interactions and potential impacts is similar in scope to that recommended by the Canadian Environmental Assessment Agency (1992; 1998) and widely used by proponents across Canada.

Forest management activities proposed in the FSP to undertake planning, infrastructure development, timber harvesting, forest renewal, forest protection and equipment use are listed on the vertical axis of each matrix (comprising the rows of the matrix). There are 28 such activities as described in Appendix 1. Further descriptions of these activities are provided in the FSP, DOPs and WIs as applicable.

Environmental, social and economic components are displayed on the horizontal axis across the top of the columns that comprise these attributes. There are a total of 73 such components and groupings indicated in 10 matrices (Tables 1 to 10) to cover the range of values present across FML 01.

It is in the representation of these environmental, social and economic components that the C & I approach is applied to this EIA. These components have been grouped within the Criteria to which they are applicable; furthermore, within the Criteria they have been delineated based upon the Values that comprise each criterion. All of the Criteria and their respective Values are represented within the matrices. In defining the attributes, components have been used to represent each environmental, social and economic component. The Indicators developed for the C & I provide the basis for the attribute components in these matrices. For the purpose of the EIA a number of additional components have been added and several of the C & I indicators have been partitioned to facilitate review.

In order to streamline the assessment of impacts upon components of the six Criteria some modification was made to eliminate duplicating review for Values and Indicators that are repeated within the C & I framework. Where this situation occurs the components involved are indicated in the notes at the bottom of each applicable table.

The impact assessment matrices are organized around each of the six Criteria listed in Section 1.1. The Criteria are indicated as a heading above each matrix. Within each matrix the Values which make up each Criteria are utilized as headings above the components (including Indicators). The components for the environmental, social and economic components are thereby grouped into the Values that they represent.

### **2.2 Assessment of Impacts**

In undertaking the assessment, each of the forest management activities is assessed in terms of potential for impact on each component. Each activity is assessed as follows:

No impact or not applicable, matrix cell left blank  
Impact but insignificant and mitigable, matrix cell indicates, “I”  
Impact significant but mitigable, matrix cell indicates, “M”  
Impact significant and non-mitigable, matrix cell indicates, “N”  
Impact positive, matrix cell indicates, “\*”

Where “no impact” is assessed, cells are left blank to improved readability of the matrix.

Impacts and their significance were assessed using factors recommended by the Canadian Environmental Assessment Agency (CEAA), (1994; 1998) and include:

**Magnitude** of the potential impact in terms of severity at the site or stand, landscape and transboundary level, including potential for cumulative effects. Increased severity and alteration to the site or landscape contributes to significance.

**Geographic extent** of the potential impact in terms of localized site (e.g. stand or cutblock), landscape (e.g. watershed), FML 01 and region and transboundary, including potential for cumulative effects. Wider ranging impacts contribute to significance.

**Duration and frequency** of the impact in terms of forest and human life cycles. Long-term and frequent effects contribute to significance.

Although CEAA provides general guidance regarding factors to consider in an environmental assessment, the basis for evaluation of each factor is left to the proponent to define. The table provided in Appendix 2 describes the basis used to evaluate factors contributing to the overall assessment of impacts and significance for each activity. In evaluating the interaction between each forest management activity and environmental, social and economic component, the potential impact relating to each of the three factors listed above was considered in combination to determine significance of potential impacts. This overall assessed impact was then input to the applicable impact implication table.

### **2.3 Supporting Description of Impacts and Mitigation Processes**

In support of the assessment provided in the impact implication matrices, a rationale and discussion is provided. The discussion and rationale incorporates pertinent research and other literature, industry experience, as well as Company experience in FML 01. Each discussion includes:

Brief introduction to each of the Criteria and respective Values.  
Discussion of data adequacy and data gaps related to the FSP and other available sources and the requirements of undertaking the EIA.  
Pertinent issues related to the component under review.  
Discussion of the assessment in terms of potential impacts, developed mitigation processes and relationships to natural disturbance regimes in the spatial and temporal context.

The focus of the discussion is on the significant/mitigable and significant/non-mitigable impacts as defined in the matrix analysis. For these situations the nature of the impact is discussed and the associated mitigation strategies are identified as per the FSP, DOPs and WIs

and relevant MC guidelines. As is typical in a project of this nature, development of mitigation measures and an accompanying long-term adaptive management strategy has been undertaken in conjunction with the preparation of the FSP. The application of the C & I approach combined with the development of an ISO 14001 EMS program and FSC certification has provided substantial direction in this regard. Integration of the EIA with the development of these approaches and the FSP has allowed for contribution to refinement of these processes. This EIS includes discussion of these measures and for situations in which current practices and/or guidelines are determined to be insufficient, or in cases where additional research is suggested, additional measures are brought forward in the form of recommendations.

Situations for which significant/non-mitigable impacts will result in residual impacts on defined components (environmental, social and economic) are discussed in terms of the net benefits derived from the activity relative to the impact, and whether or not temporal (long-term forest life cycle) and/or spatial (ecosystem landscape) considerations will compensate for site level impacts.